



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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ROBERT W. GOLLEDGE, Jr.
Commissioner

PILOTING APPROVAL
Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Lombardo Associates, Inc.
49 Edge Hill Road
Newton, MA 02467-1170

Trade name of technology and model: RID Phosphorus Removal System (hereinafter called the "System"). Schematic drawings illustrating the System and a technology checklist are attached and are part of this Approval.

Transmittal Number: W 035467
Date of Issuance: October 27, 2003
Date of Expiration: October 27, 2008

Authority for Issuance

Pursuant to Title 5 of the State Environmental Code, 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval to: Lombardo Associates, Inc., 49 Edge Hill Road, Newton, MA 02467-1170 (hereinafter "the Company"), to Pilot in the Commonwealth of Massachusetts the System described herein. Sale and use of the System are conditioned on and subject to compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Approval constitutes a violation of 310 CMR 15.000.

SIGNED
Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection

10/27/03
Date

I. Purpose

1. The purpose of this Approval is to provide field testing and technical demonstration of the System in Massachusetts, on a Pilot Approval basis, so as to evaluate that the System can function effectively.
2. With the necessary permits and approvals required by 310 CMR 15.000, this Pilot Approval authorizes the use and installation of the System in Massachusetts. The Department will require testing to determine whether the System is capable of consistently functioning to effectively reduce total phosphorus (TP) to less than 1 milligram per liter (mg/L) as claimed by the Company.
3. The System may be installed and operated in conformance with 310 CMR 15.285 and only on facilities that meet the criteria of 310 CMR 15.285(2).
4. This Approval for Piloting authorizes the use of the System for phosphorous reduction, with the approval of the local approving authority, for systems with design flows less than 10,000 gallons per day.

II. Design Standards

1. The System uses a reductive iron dissolution (RID) media up flow filter to reduce total phosphorous. The System consists of two treatment units: the initial unit with RID media and a second unit, which operates as an oxygenation filter. The oxygenation filter may consist of any sand, textile or foam filter approved by the Department. The RID media tank is designed for a hydraulic residence time of 6-24 hours and the hydraulic application rate onto the down flow sand filter is 2 gallons per day per square foot.
2. Wastewater from a Title 5 compliant septic tank or alternative treatment system is discharged to an up flow filter containing RID media. The RID treated wastewater then passes through an oxygenation filter and is pumped to a distribution box for final disposal to a Title 5 compliant soil absorption system (SAS).
3. The System shall be installed in series between the septic tank or alternative treatment unit and the SAS constructed in accordance with 310 CMR 15.100 - 15.279, subject to the provisions of this Approval.

III. General Conditions

1. No more than 15 Systems may be installed under this Approval. A representative of the Company shall be present onsite to inspect and approve each System installation.
2. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Approval.

3. Any required operation and maintenance shall be performed by the Company in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S. EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It is a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
4. The following table lists the monitoring requirements for Systems installed under this Approval. The following parameters shall be monitored: pH, biochemical oxygen demand (BOD₅), total suspended solids (TSS) and total phosphorous (TP). All monitoring data shall be submitted to the Department and local approving authority within 45 days of the sampling date.

Facility Type	Stream	Frequency	Sample Type
Residential	Effluent	Every month for the first three months, quarterly thereafter for 15 months	Grab
Non-residential	Influent* & Effluent*	Monthly for the first twelve months, quarterly thereafter	Composite*

* Unless the Department determines otherwise upon the written request of the Company.

5. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
6. In accordance with applicable law, the Department and/or the local approving authority may require the owner of the System to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.
7. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.
8. Design and installation of the System shall be in strict conformance with the Company's DEP approved plans and specifications, 310 CMR 15.000 and this Approval.

IV. Conditions Applicable to the System Owner

1. The System is approved in connection with the discharge of sanitary wastewater only. Any non-sanitary wastewater generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed of.
2. Operation and Maintenance plan and agreement:
 - a. Throughout its life, the System owner shall operation and maintenance (O&M) the System in accordance with this Approval, the designer's operation and maintenance requirements, and the Company's approved procedures and sampling protocol. To ensure proper O&M, the System owner shall enter into an O&M agreement with the Company for a term of at least 18 months. Each subsequent O&M agreement shall be for a term of at least one year;
 - b. No System shall be used until an O&M plan is submitted to the Department and the local approving authority which:
 - i Provides for the contracting of a person or firm competent in providing services, trained by the Company as provided in Section V (6), to operate the System consistent with the System's specifications and the operation and maintenance requirements specified by the designer and any specified by the Department;
 - ii Contains procedures for notification to the Department and the local approving authority within five days of a System failure or alarm event and for corrective measures to be taken immediately;
 - iii Provides the name of the operator, which must be a Massachusetts certified operator as required by 257 CMR 2.00, that will operate and monitor the System. The operator must inspect and sample the System at the frequency specified in Section III (4) and inspect the System anytime there is an alarm event;
 - iv The System owner shall notify the Department and the local approving authority in writing within seven days of any change in the operator and submit a copy of the new agreement to operate and monitor the System
3. Within 30 days of the end of the first 18 months of operation the System owner in conjunction with the Company shall submit a summary report on the System, any changes in operation or design that were made during the Piloting period, the final results of the Piloting program and whether the System met the effluent limits for

the previous 12 months of operation. That report shall also include either recommendations for approving and ending the Piloting program or recommendations for continuing Piloting for a System that has not performed as planned. If the Department determines that the System has performed at the relevant level for at least 12 months, the System owner shall sign at least a one year agreement with any individual or firm with a Massachusetts certified operator of the appropriate grade.

- a. Effluent discharge limits shall remain as prescribed in Section V (9).
 - b. All samples shall be taken at a flowing discharge point, i.e.- distribution box, pipe entering a pump chamber or other Department approved location from System. Any required influent sample shall be taken at a point that will provide a representative sample of the influent. Influent sampling locations shall be determined by the system designer, subject to written approval by the Department
 - c. The System owner shall submit monitoring data and O & M inspection results to the Department and the local approving authority annually by September 30th for the preceding 12 months. The inspection results must be recorded by the System operator on a DEP approved inspection form and a technology checklist, a copy of which is attached to this Approval.
 - d. The System owner may request, in writing, a change in the monitoring requirements from the Department.
4. The System owner shall furnish the Department any information, which the Department may request regarding the System, within 21 days of the date of receipt of that request.
 5. The System owner shall provide a copy of this Approval, prior to the signing of a purchase and sale agreement for the facility served by the System or any portion thereof, to the proposed new owner.
 6. Prior to installation of the System, the System owner shall submit to the Department the written approval of the local approving authority, together with a copy of the complete application submitted to the local approving authority and a complete BRP WP 64b application and obtain DEP written approval.
 7. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing both the existence of the alternative septic system subject to this Approval on the property and the Department's approval of the System. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the Department and the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

8. Within fourteen days of the local approving authority's issuance of the Certificate of Compliance, the owner shall submit a copy of the Certificate of Compliance to the Department.

V. Conditions Applicable to the Company

1. By January 31st of each year, the Company shall submit to the Department a report, signed by a corporate officer, general partner or Company owner, that contains information on the System, for the previous calendar year. The report shall state: the number of units of the System sold for use in Massachusetts during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, institutional), and the design flow; and for all Systems installed since the date of issuance of the Approval, the status of the operation and maintenance agreement with the owner, all known failures, malfunctions, and corrective actions taken and the date and address of each such event.
2. The Company shall notify the Director of the Watershed Permitting Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval is issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.
3. The Company shall develop and submit to the Department: minimum installation requirements; an operating manual, including information on substances that should not be discharged to the System and a recommended schedule for maintenance of the System essential to consistent successful performance of the installed Systems within 60 days of the effective date of this Approval.
4. The Company shall develop and submit to the Department a standard protocol essential for consistent and accurate measurement of performance of installed Systems, including procedures for sample collection, if necessary and analysis of the System within 60 days of the effective date of this Approval. The protocol shall be in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.
5. The Company shall make available, in print and electronic format, the referenced procedures and protocol in paragraphs 3 and 4 directly above to owners, operators, designers and installers of the System.
6. The Company shall institute and maintain a program of operator training and continuing education, as approved by the Department. The company shall update the list of qualified operators and make the list known to users of the technology
7. Prior to sale of the System, the Company shall provide the purchaser with a copy of this Approval. Prior to any contract for distribution or sale of the System, the Company shall notify the Department in writing and provide a plan to ensure that

the distributor or seller shall provide the purchaser of the System, prior to any sale of the System, with a copy of this Approval.

8. For at least the first 18 months of operation, the Company shall operate, maintain and monitor the Systems in accordance with Section III (4) of this Approval.
9. The concentration in the effluent of BOD₅ and TSS discharged from the System shall not exceed the influent concentrations to the System (after treatment in the septic tank or alternative treatment system). Effluent pH shall be between 6 and 9.
10. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the date of receipt of that request.
11. For at least the first 18 months of operation of each System, the Company shall be responsible for submitting monitoring data and O & M inspection results to the Department and the local approving authority within 45 days of each sampling date and each inspection date. The inspection results must be recorded on a DEP approved inspection form and a technology checklist. Accurate completion of the forms shall be the responsibility of the Company.
12. Within 30 days of the end of the first 18 months of operation the Company shall submit a summary report on each System describing the operations of the System, any changes in operation or design that were made during the Piloting period, the final results of the Piloting program for that System and whether the System met the effluent limits for the previous 12 months of operation. That report shall also include either recommendations for approving and ending the Piloting program for that System or recommendations for continuing Piloting for any System that has not performed as planned.
13. The Department will review the report in item 12 above and determine if additional Piloting of the System is required. If the Department determines that the System has performed at the relevant level for at least 12 months, the Company can turn the responsibility for operation and monitoring of the System over to the owner in accordance with Section IV, item 4 of this Approval.
14. The Company shall include copies of this Approval and the procedures and protocol described in Section V (3) and (4) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures and protocol described in Section V (3) and (4).
15. If the Company wishes to continue this Piloting Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless permission for a later date has been granted in writing by the Department.

VI. Reporting

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

Director
Watershed Permitting Program
Department of Environmental Protection
One Winter Street - 6th floor
Boston, Massachusetts 02108

VII. Rights of the Department

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System and/or the Company.

VIII. Expiration date

1. Notwithstanding the expiration date of this Approval, any System sold and installed prior to the expiration date of this Approval, and approved, installed and maintained in compliance with this Approval (as it may be modified) and 310 CMR 15.000, may remain in use unless the Department, the local approving authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.